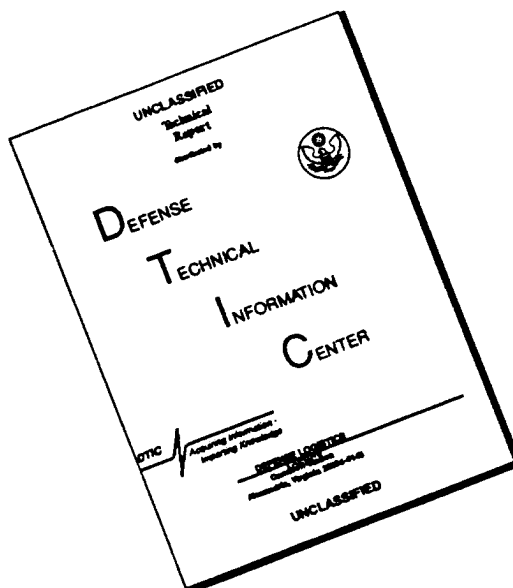


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TELECOMMUNICATIONS AND  
TIMING GROUP

IRIG STANDARD 215-96

## ASYNCHRONOUS ASCII EVENT COUNT STATUS CODES

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**IRIG STANDARD 215-96**

**ASYNCHRONOUS ASCII  
EVENT COUNT STATUS CODES**

**SEPTEMBER 1996**

**Prepared by**

**TELECOMMUNICATIONS AND TIMING GROUP  
RANGE COMMANDERS COUNCIL**

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## **1.0 General Description of Standard**

This standard describes four ASCII (American Standard Code for Information Interchange) event count status formats to be used to transfer event count status over conventional asynchronous telecommunications circuits. These formats provide event count status information suitable for most computer, dumb terminal, line printer, and remote visual displays. Precise event count status transfer is not an objective of this standard; therefore, there is no attempt to provide greater than 100-millisecond or 1-second resolution for these formats. This standard provides systems engineers and equipment vendors with an IRIG standard for ASCII-formatted event count status transfer which can be used in specifications for the procurement of equipment used on all United States test ranges and other military or civilian facilities.

## **2.0 General Description of Formats**

An overview of the formats is described in the following paragraphs. See figures 1 through 4.

## 2.1 IRIG CS-511z

The IRIG CS-511z is for use at baud rates  $\geq 300$  (see figure 1). It is a Time-of-Year format with 1-second resolution and frame length. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

**<SOH>I<SP> $\pm$ DDD<SP>HH:MM:SS<SP>#<CR><LF>**

where

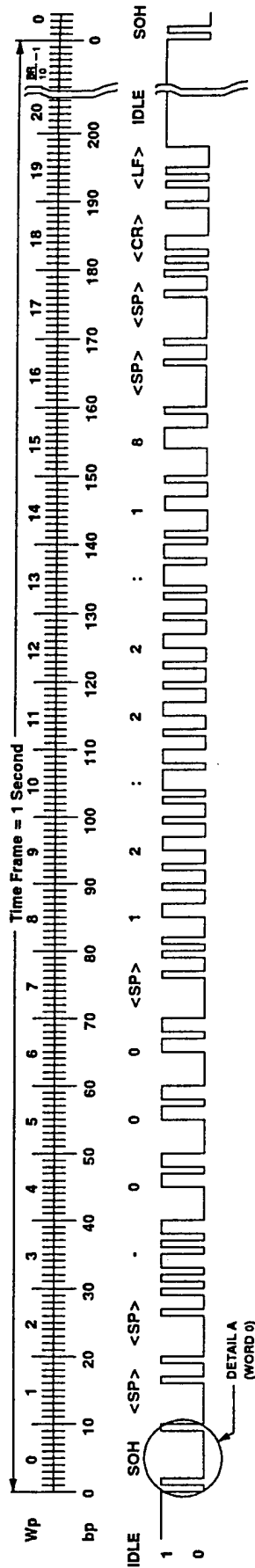
**<SOH>** = start of header (01<sub>16</sub>)  
**I** = identification character -- space (20<sub>16</sub>) is default, any alpha or numeric ASCII character  
**<SP>** = space (20<sub>16</sub>)  
 **$\pm$**  = the event count sign  
**DDD** = the event count day  
**HH** = the event count hour of the day  
**<:>** = colon (3A<sub>16</sub>)  
**MM** = the event count minute of the hour  
**SS** = the event count second of the minute  
**#** = the event count status -- space (20<sub>16</sub>) is default, H (48<sub>16</sub>) if holding  
**<CR>** = carriage return (0D<sub>16</sub>)  
**<LF>** = line feed (0A<sub>16</sub>)

The IRIG CS-511z uses the first 200 bits of the 1-second frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 1 second, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.



**Example: Default ID, Event Count Status is -000 Days, 12 Hrs, 22 Mins, 18 Secs and Counting.**



**Wp = WORD POSITION**  
**bp = BIT POSITION**

LOGIC LEVEL	
1	0
MARK	SPACE
STOP	START
IDLE	N/A

**IDENTIFICATION CHARACTER (Wp = 1)**  
**Space <SP> is the default.**  
**Any alpha or numeric ASCII character.**

**COUNT STATUS (Wp = 17)**  
Space <SP> is the default.  
'H' if the count is Holding.

**ZERO COUNT**  
**-000:00:00:00 is Undefined**  
**+000:00:00:00 is Zero Count**

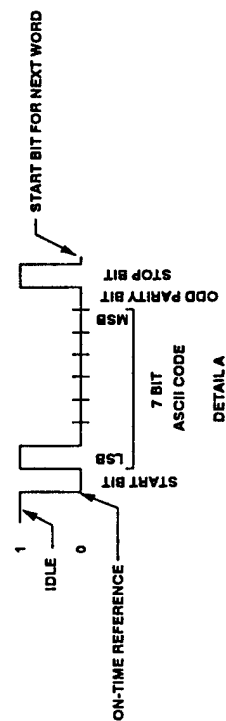


Figure 1. ASCII event count status format CS-511z.

## 2.2 IRIG CS-522z

The IRIG CS-522z is for use at baud rates  $\geq 2400$  (see figure 2). It is a Time-of-Year format with 100-millisecond resolution and frame length. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

**<SOH>I<SP>±DDD<SP>HH:MM:SS.S<SP>#<CR><LF>**

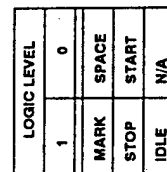
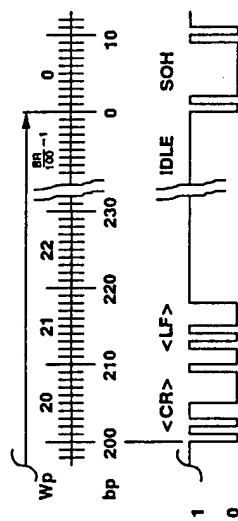
where

**<SOH>** = start of header ( $01_{16}$ )  
**I** = identification character -- space ( $20_{16}$ ) is default, any alpha or numeric ASCII character  
**<SP>** = space ( $20_{16}$ )  
**±** = the event count sign  
**DDD** = the event count day  
**HH** = the event count hour of the day  
**<:>** = colon ( $3A_{16}$ )  
**MM** = the event count minute of the hour  
**SS.S** = the event count second and tenth of second of the minute  
          {period "." = ( $2E_{16}$ )}  
**#** = the event count status -- space ( $20_{16}$ ) is default, H ( $48_{16}$ ) if holding  
**<CR>** = carriage return ( $0D_{16}$ )  
**<LF>** = line feed ( $0A_{16}$ )

The IRIG CS-522z uses the first 220 bits of the 100-millisecond frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 100 milliseconds, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.

**Example: ID Is 3, Event Count Status Is -000 Days, 12 Hrs, 22 Mins, 18.5 Secs and Holding.**



**-000:00:00:00.0 is Undefined**  
**+000:00:00:00.0 is Zero Count**

Figure 2. ASCII event count status format CS-522z.

### 2.3 IRIG CS-513z

The IRIG CS-513z is for use at baud rates  $\geq 600$  (see figure 3). It is a Time-of-Year format with 1-second resolution and frame length. In addition to the event count status, this format has information regarding the predicted time of launch or the actual time of launch if launch has occurred. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

**<SOH>I<SP>±DDD<SP>HH:MM:SS<SP>#<SP>ddd<SP>hh:mm:ss.sss<SP>&  
<CR><LF>**

where

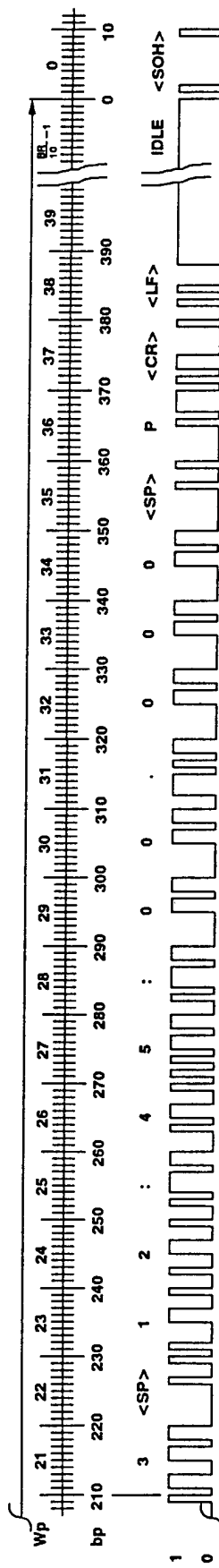
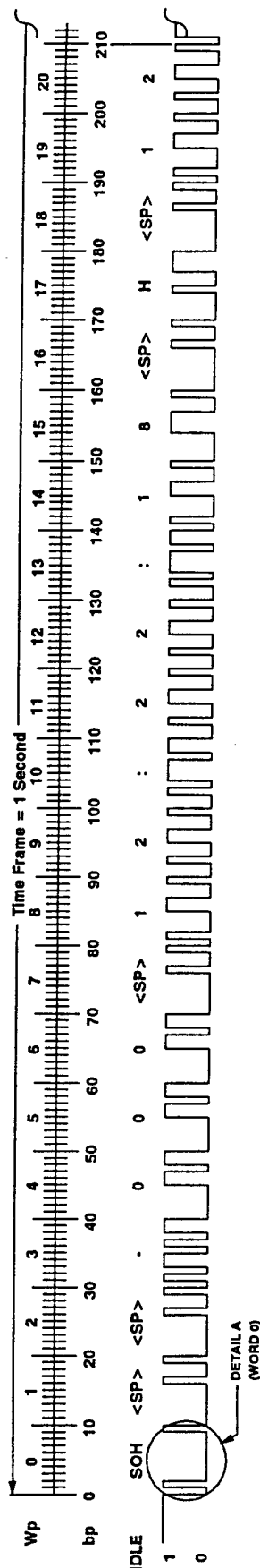
**<SOH>** = start of header (01<sub>16</sub>)  
**I** = identification character -- space (20<sub>16</sub>) is default, any alpha or numeric ASCII character  
**<SP>** = space (20<sub>16</sub>)  
**±** = the event count sign  
**DDD** = the event count day  
**HH** = the event count hour of the day  
**<:>** = colon (3A<sub>16</sub>)  
**MM** = the event count minute of the hour  
**SS** = the event count second of the minute  
**#** = the event count status -- space (20<sub>16</sub>) is default, H (48<sub>16</sub>) if holding  
**ddd** = predicted/actual launch day  
**hh** = predicted/actual launch hour of the day  
**mm** = predicted/actual launch minute of the hour  
**ss.sss** = predicted/actual launch second and milliseconds of the minute {period "." = (2E<sub>16</sub>)}  
**&** = launch time information -- P(50<sub>16</sub>) predicted, A(41<sub>16</sub>) actual  
**<CR>** = carriage return (0D<sub>16</sub>)  
**<LF>** = line feed (0A<sub>16</sub>)

The IRIG CS-513z uses the first 390 bits of the 1-second frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 1 second, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.

# BAUD RATE (BR) ≥ 600

Example: Default ID, Event Count Status is -000 Days, 12 Hrs, 22 Mins, 18 Secs and Holding. Predicted Launch Time is 123 Days, 12 Hrs, 45 Mins, 00.000 Secs (TOY).



**IDENTIFICATION CHARACTER (Wp = 1)**  
 Space <SP> is the default.  
 Any alpha or numeric ASCII character.

**COUNT STATUS (Wp = 17)**  
 Space <SP> is the default.  
 'H' if the count is Holding.

**ZERO COUNT**  
 -000:00:00:00 is Undefined  
 +000:00:00:00 is Zero Count

Wp = WORD POSITION  
 bp = BIT POSITION

LOGIC LEVEL	
1	0
MARK	SPACE
STOP	START
IDLE	N/A

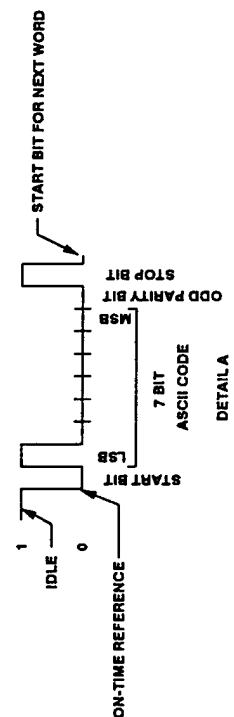


Figure 3. ASCII event count status format CS-513z.

## 2.4 IRIG CS-524z

The IRIG CS-524z is for use at baud rates  $\geq 4800$  (see figure 4). It is a Time-of-Year format with 100-millisecond resolution and frame length. In addition to the event count status, this format has information regarding the predicted time of launch or the actual time of launch if launch has occurred. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

**<SOH>I<SP> $\pm$ DDD<SP>HH:MM:SS.S<SP>#<SP>ddd<SP>hh:mm:ss.sss<SP>  
&<CR><LF>**

where

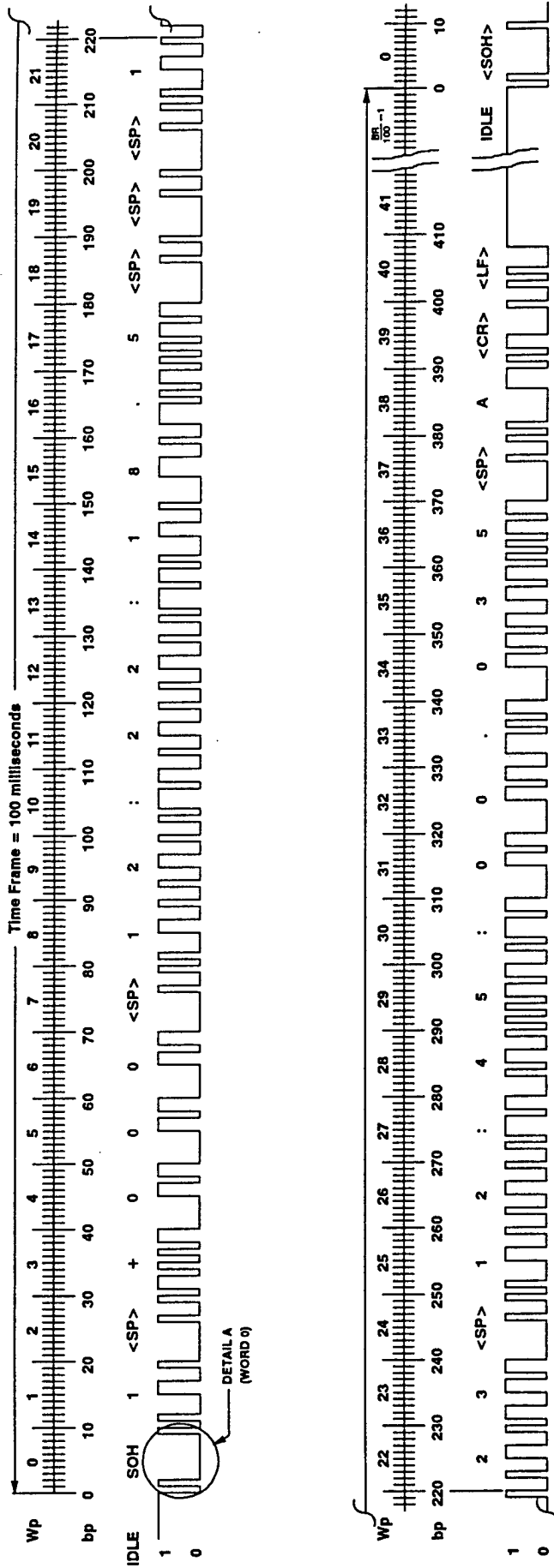
**<SOH>** = start of header (01<sub>16</sub>)  
**I** = identification character -- space (20<sub>16</sub>) is default, any alpha or numeric ASCII character  
**<SP>** = space (20<sub>16</sub>)  
 **$\pm$**  = the event count sign  
**DDD** = the event count day  
**HH** = the event count hour of the day  
**<:>** = colon (3A<sub>16</sub>)  
**SS.S** = the event count second and tenth of second of the minute  
{period "." = (2E<sub>16</sub>)}  
**#** = the event count status -- space (20<sub>16</sub>) is default, H (48<sub>16</sub>) if holding  
**ddd** = predicted/actual launch day  
**hh** = predicted/actual launch hour of the day  
**mm** = predicted/actual launch minute of the hour  
**ss.sss** = predicted/actual launch second and milliseconds of the minute  
**&** = launch time information -- P(50<sub>16</sub>) predicted, A(41<sub>16</sub>) actual  
**<CR>** = carriage return (0D<sub>16</sub>)  
**<LF>** = line feed (0A<sub>16</sub>)

The IRIG CS-524z uses the first 410 bits of the 100-millisecond frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 100 milliseconds, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.

BAUD RATE (BR)  $\geq 4800$

Example: ID is 1, Event Count Status is +000 Days, 12 Hrs, 22 Mins, 18.5 Secs and Counting. Actual Launch Time was 123 Days, 12 Hrs, 45 Mins, 00.035 Secs (TOY).



**IDENTIFICATION CHARACTER (Wp = 1)**  
Space <SP> is the default.  
Any alpha or numeric ASCII character.

**COUNT STATUS (Wp = 19)**  
Space <SP> is the default.  
'H' if the count is Holding.

**ZERO COUNT**  
-000:00:00:00.0 is Undefined  
+000:00:00:00.0 is Zero Count

Wp = WORD POSITION  
bp = BIT POSITION

LOGIC LEVEL	
1	0
MARK	SPACE
STOP	START
IDLE	N/A

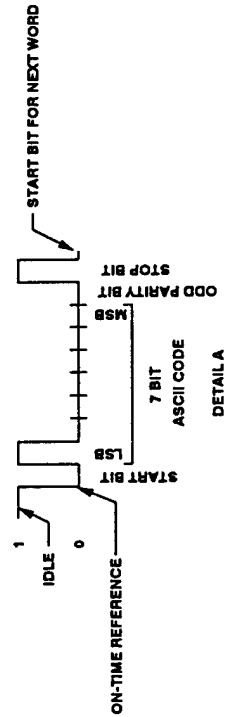


Figure 4. ASCII event count status format CS-524z.

## **2.5 Word Description**

Each ASCII word (character position) contains exactly 10 bits ( $b_0 - b_9$ ).

$b_0$  = start bit

$b_1 - b_7$  = 7 bit sequence for ASCII character (lsb first)

$b_8$  = odd parity bit

$b_9$  = stop bit

## **2.6 Parity**

This standard employs ODD parity only.

## **2.7 Baud Rates**

The baud rates for the four ASCII event count status formats are

CS-511z  $\geq$  300 baud

CS-522z  $\geq$  2400 baud

CS-513z  $\geq$  600 baud

CS-524z  $\geq$  4800 baud



## **2.8 IRIG CS Format Designation Description**

The IRIG CS format and baud rates can be uniquely described by specifying x, y, and z in IRIG CS-5xyz,

where

- x = 1 for 1-second resolution
- = 2 for 0.1-second resolution
- y = 1 for format described in paragraph 2.1
- = 2 for format described in paragraph 2.2
- = 3 for format described in paragraph 2.3
- = 4 for format described in paragraph 2.4
- z = 2 for 300 baud rate
- = 3 for 600 baud rate
- = 4 for 1200 baud rate
- = 5 for 2400 baud rate
- = 6 for 4800 baud rate
- = 7 for 9600 baud rate
- = 8 for 19,200 baud rate

**Example:** The IRIG CS-5226 describes the ASCII format containing event count status with 100-millisecond resolution and frame length which is transmitted at 4800 baud.

Standard formats are IRIG CS-5112, IRIG CS-5113, IRIG CS-5114, IRIG CS-5225, IRIG CS-5226, IRIG CS-5227, IRIG CS-5228, IRIG CS-5133, IRIG CS-5134, IRIG CS-5135, IRIG CS-5246, IRIG CS-5247, and IRIG CS-5248.